Specification Page 4, lines 10-14

FIG. 5 is a more detailed flow diagram of the Create Local Printer Step 250 of Fig. 4 that

shows the method for creating a local printer.

FIGS. 6-1 through 6-60 are listings 6.1-60 is a listing of an exemplary source code

implementation of the printer management protocol of the present invention, inclusive of steps 110-

470 (demarcated with step members indicated), written using Borlund® version 5.0.

Specification Page 12, lines 7-30

At Step 100, the user logs on and PMP Client Software is launched from the UserInit string. UserInit is a system program that starts all programs listed in the UserInit string at logon and initializes variables. The implementing source code for step 110 can be found at FIG. ~~6-2~~ 6-2.

Step 110 introduces a delay during which the program sleeps for a predetermined number of seconds (StartupDelay). The implementing source code for step 110 can be found at FIG. ~~6-9~~ 6-9. In many cases, users will manually connect to network printers during their session. This can cause problems if the user is not familiar with the naming schemes involved in connecting to network printers. The PMP Centralized Administration Server Software allows the administrator to set a flag in the PMP Client Software to force the clearing of all network printers or logon. If this flag is set, Step 120 clears the network printer connections stored in the user profile. The implementing source code for Step 120 can be found beginning at FIG. ~~6-10~~ 6-10.

Program flow proceeds to Step 130 where local printers are added and FIG. 3 illustrates a detailed Add Local Printers flow chart representative of this step. The implementing source code for Step 130 can be found beginning at FIG. ~~6-3~~ 6-3.

Specification Page 13, lines 1-20

Beginning at Step 200, the program builds the select statement used to query the database for

the assigned local printers. The implementing source code for Step 200 can be found at FIG. 6̶.̶4̶ 6-4.

The select statement is the primary query command for Structured Query Language (also known as

SQL). "Owners" are a combination of groups that a user belongs to, the user name, the terminal

name (client name) and the computer name. Owners are assigned printers or printer connections in

the PMP Centralized Administration program and these assignments are stored in the

AssignedLocalPrinters table of the PMP Database described above.

Step 210 adds the Owners that the user belongs to, to the SQL select statement as shown.

The implementing source code for Step210 can be found at FIG. 6̶.̶4̶ 6-4.

Step 220 runs the query defined by the SQL select statement. The implementing source code

for Step 220 can be found at FIG. 6̶.̶4̶ 6-4.

If there are no records returned, the Add Local Printers Step 130 is complete. Otherwise, for

each record returned, the following steps are repeated.

Step 230 moves the database pointer to the next printer to be added. The implementing

source code for Step 230 can be found at FIG. 6̶.̶4̶ 6-4.

Step 240 creates a new TPrinterControl object that encapsulates the printer creation. The

implementing source code for Step 240 can be found at FIG. 6̶.̶4̶ 6-4.

Step 250 takes us to the Create Local Printer step, and FIG. 4 illustrates a detailed Create

Local Printer flow chart representative of this step. The implementing source code for Step 250 can

be found beginning at FIG. 6̶.̶4̶ 6-4.

Specification Page 14, lines 1-22

Step 400 reads the printer configuration stored for the selected printer and populates the

SelectedPrinterInfo structure (see TPringerControl::SelectedPrinterInfo for details). The

implementing source code for Step 400 can be found at FIG. 6.38 6-38.

Step 410 sets the new printer name. The implementing source code for Step 410 can be

found at FIG. 6.38 6-38. If the printer already exists, Create Local Printer exists. A printer port

monitor is the driver that controls the particular port that will be used to connect to the printer.

Example, if the port is an LPT port, then the port monitor is a "Local Port". Step 420 validates the

port monitor. The implementing source code for Step 420 can be found at FIG. 6.38 6-38.

Step 430 validates the port creating it if it does not exist. The implementing source code for

Step 430 can be found at FIG. 6.39 6-39. Step 440 validates the printer driver. The implementing

source code for Step 440 can be found at FIG. 6.39 6-39. If the print driver does not exist on the

client computer, then PMP will install the driver automatically. Step 450 adds the new local printer.

The implementing source code for step 450 can be found beginning at FIG. 6.39 6-39. Preferably,

the new printer name is prefixed with either <CLIENTNAME># or <USERNAME># to maintain

compatibility with Citrix MetaFrame for Microsoft Windows NT Terminal Server Edition. The

CLIENTNAME variable is defined as the name of the terminal connected to the Windows NT

Terminal Server Edition and can be found by typing "SET" at the command prompt of the user.

Step 460 restores the printer settings saved in the assigned printer configuration file. The

implementing source code for Step 460 can be found beginning at FIG. 6.39 6-39.

Step 470 sets the permissions on the printer, so only the SYSTEM and the user have access to the printer, thus restricting the printer from unauthorized users. The implementing source code for step 470 can be found beginning at FIG. ~~6.40~~ 6-40.

Specification Page 15, lines 5-21

Step 260 sets the printer as the default. The implementing source code for Step 260 can be

found at FIG. 6.5 6-5. Step 270 displays any error messages generated by Step 250. The

implementing source code for Step 270 can be found at FIG. 6.5 6-5.

Referring back to FIG. 2, once all local printer records have been processed, the Add Local

Printers Step 130 is complete. After the local printers are added, program flow proceeds to Step 140,

the Add Network Printers step. FIG. 5 illustrates a detailed Add Network Printers flow chart

representative of this step.

Referring to FIG. 5, Step 300 builds the SQL select statement used to query the database for

the assigned network printers. The implementing source code for Step 300 can be found beginning

at FIG. 6.6 6-6.

Step 310 adds the Owners that the user belongs to, to the SQL select statement. The

implementing source code for Step 310 can be found at FIG. 6.6 6-6.

Step 320 runs the query. The implementing source code for Step 320 can be found at FIG.

6.6 6-6.

For each record returned, Step 330 moves the database printer to the next printer to be added.

The implementing source code for Step 330 can be found at FIG. 6.6 6-6.

Step 340 adds the network printer connection using the AddPrinterConnection API call. The

implementing source code for Step 340 an be found at FIG. 6.6 6-6. If the printer has been

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Step 350 sets the printer as the default, and the implementing source code for Step 350 can be found beginning at FIG. 6-6 6-6.

Step 360 displays any error messages generated. Add Network Printers is complete. The implementing source code for Step 360 can be found beginning at FIG. 6-7 6-7.

Referring back to FIG. 2, once all printers have been created and connected, program flow proceeds to Step 150 and the PMP Client Software will wait for the WM_ENDSESSION message to be broadcast. The implementing source code for Step 150 can be found beginning at FIG. 6-12 6-12.

Once the WM_ENDSESSION message has been received, Step 160 removes the printers and printer connections made by PMP Client. The implementing source code for Step 160 can be found beginning at FIG. 6-9 6-9.

Step 170 is the logoff of the user and closing of PMP Client Software. The implementing source code for Step 170 can be found beginning at FIG. 6-2 6-2.